Dante
AV NETWORKING WORLD

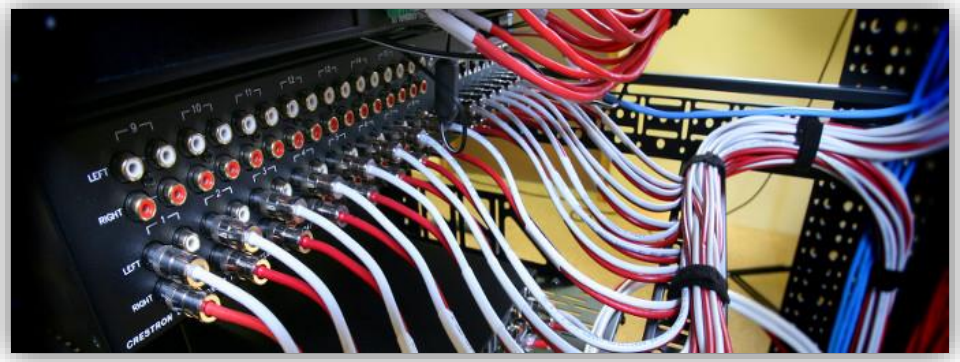
From physical to logical

Making the leap in audio systems

Kieran Walsh
Audinate

Introduction

- Physically architected audio systems are:
  - Easy to understand and troubleshoot
  - Easy to visualize
  - System is largely described by physical connections between sources and destinations



Point-to-point technologies

- Older, familiar and well understood:
  - Analogue
  - AES3
  - MADI
  - AES50
  - Etc.

In all these technologies, connections are made directly from one device to another.

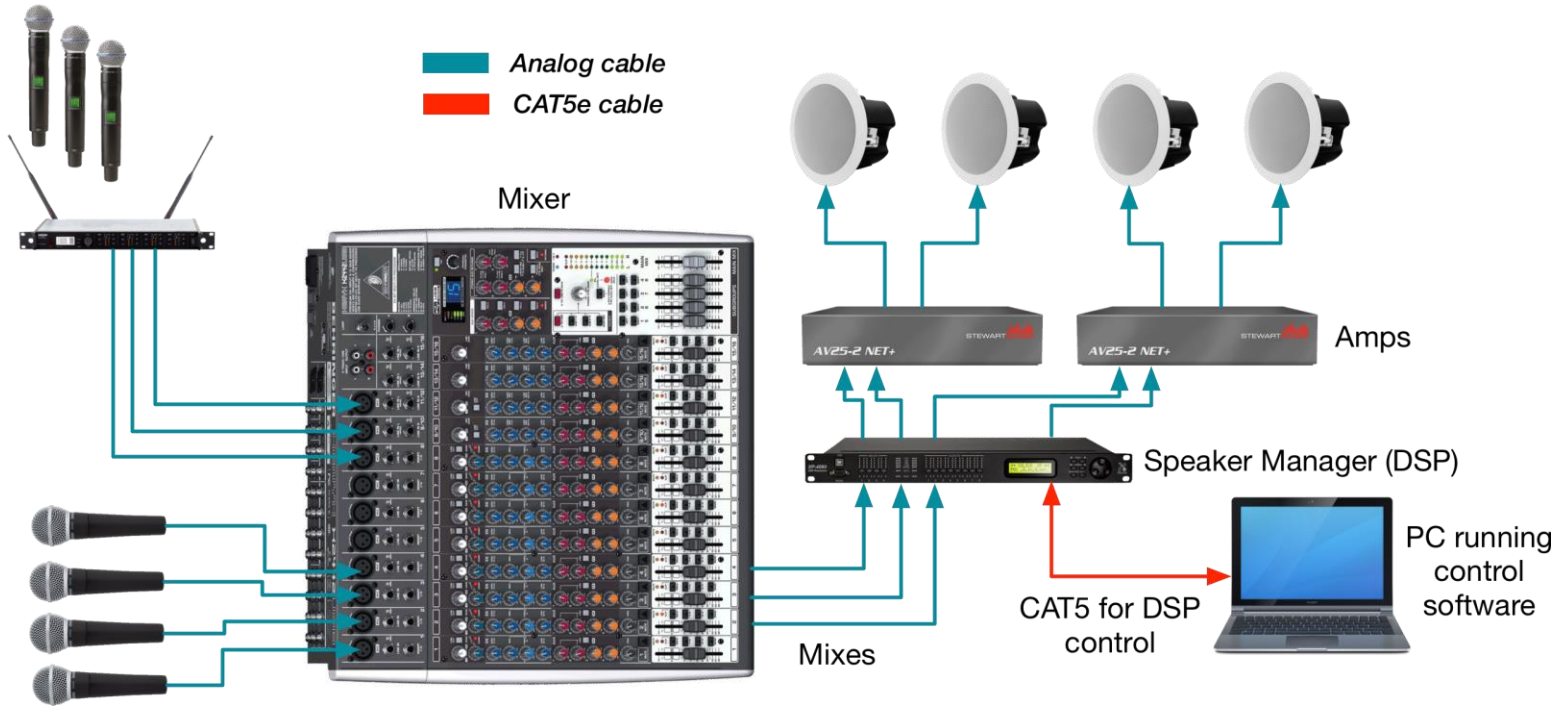
Point-to-point problems

- Size (especially multicore)
- Weight (especially multicore)
- Fragility
- Noise susceptibility
- Cost of distribution technology, e.g., MADI routers
- Cost of high quality analogue cable
- High cost of upgrade, repair and replacement

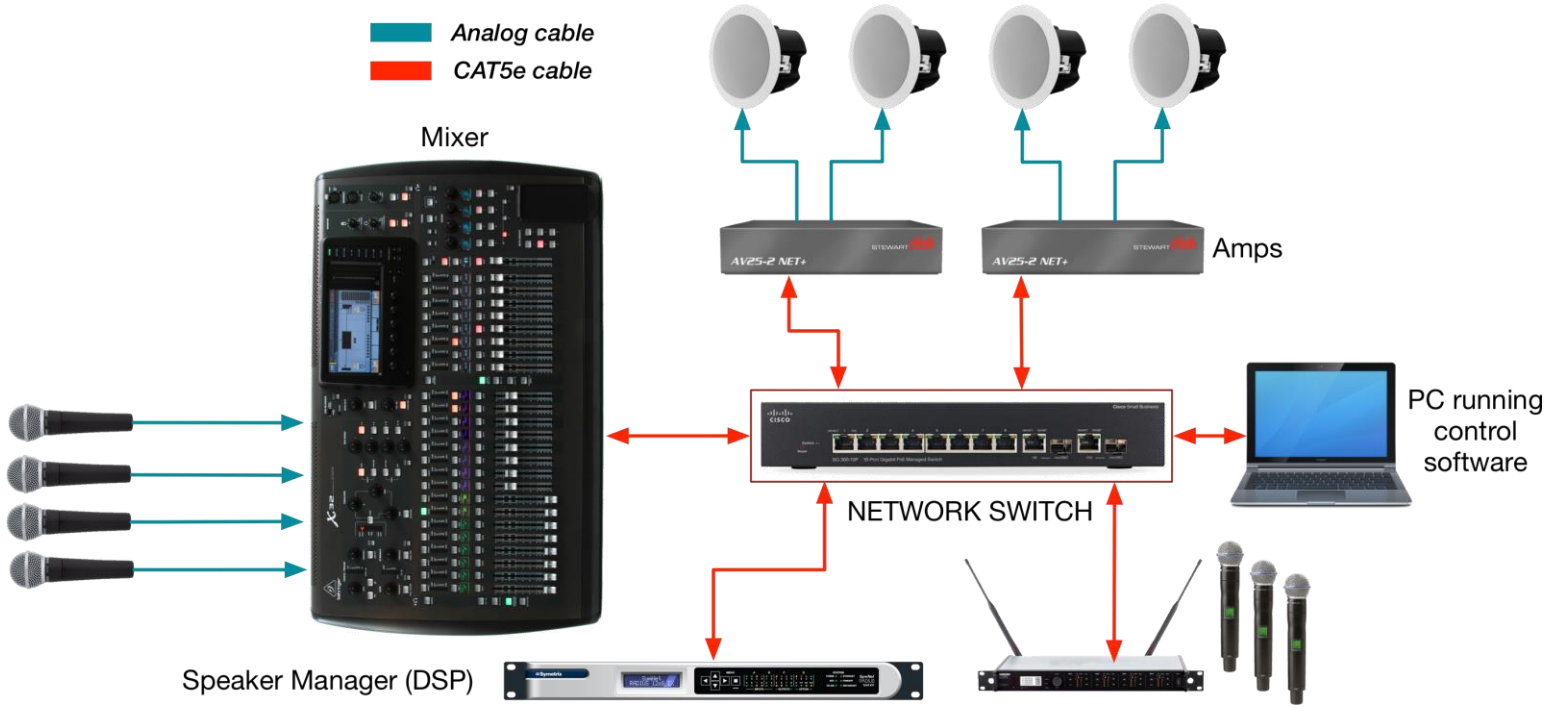
Logically connected advantages

- Far less cabling
- Lower weight and cost of cabling
- Low cost of associated equipment (e.g., network switches)
- Superior audio performance
- Inherently flexible routing with no special equipment
- Easy to install, replace and repair

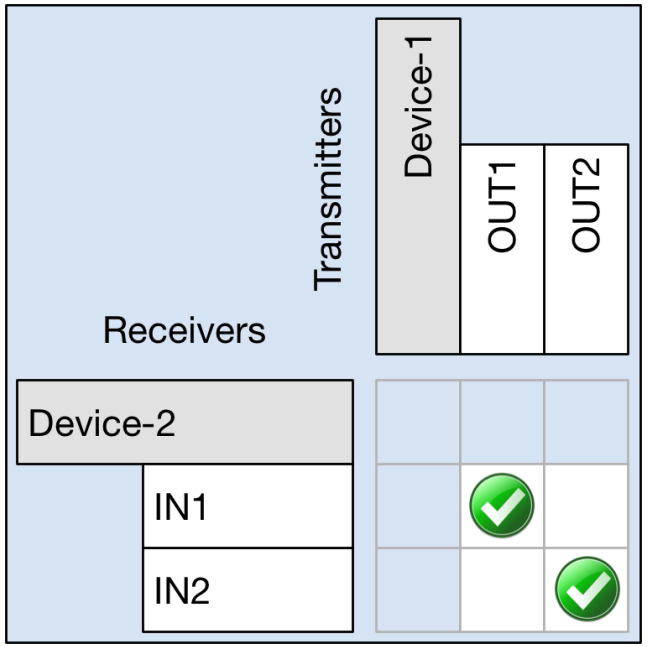
Moving from physical to logical



Moving from physical to logical



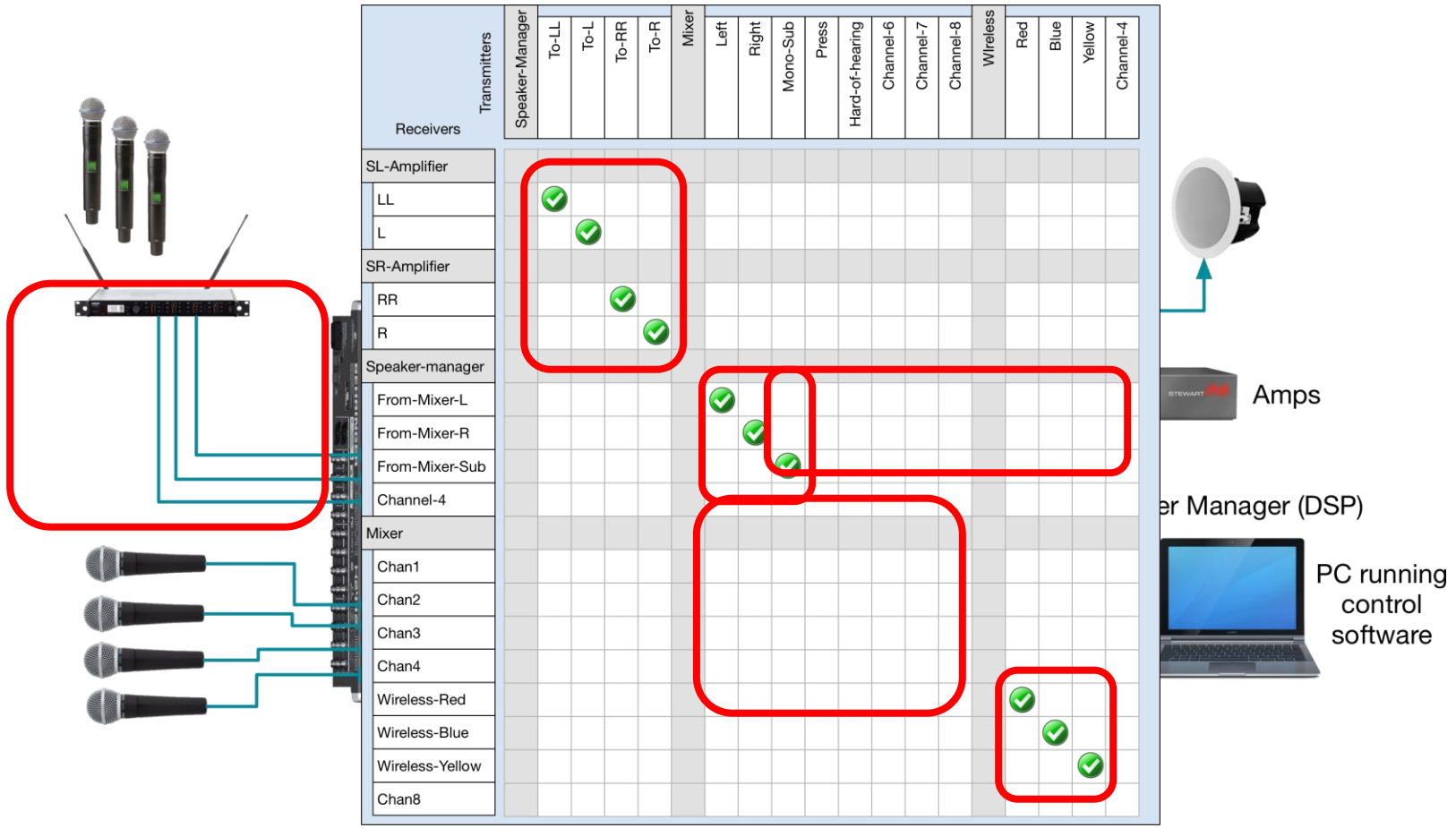
Cables vs. Subscriptions



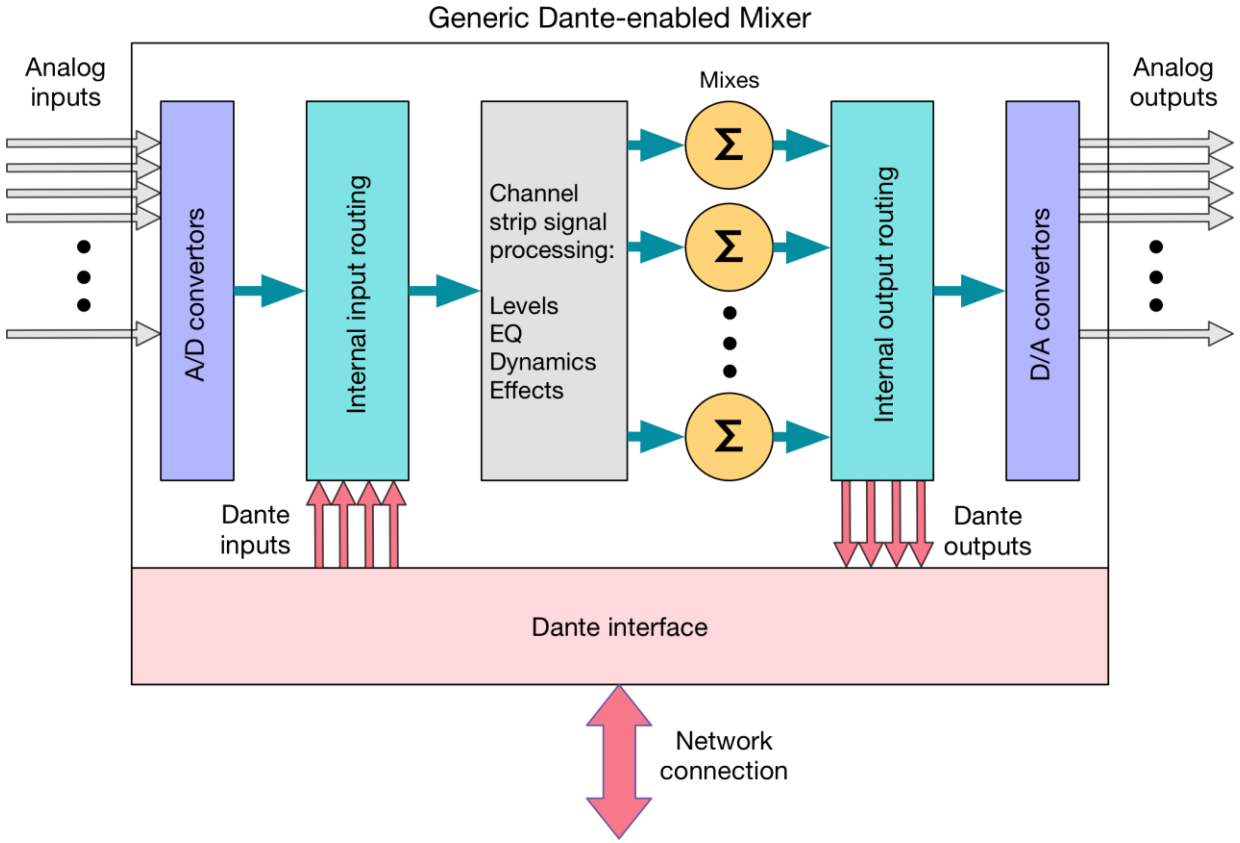
Physical

Logical

Mapping connections



I/O options and networks

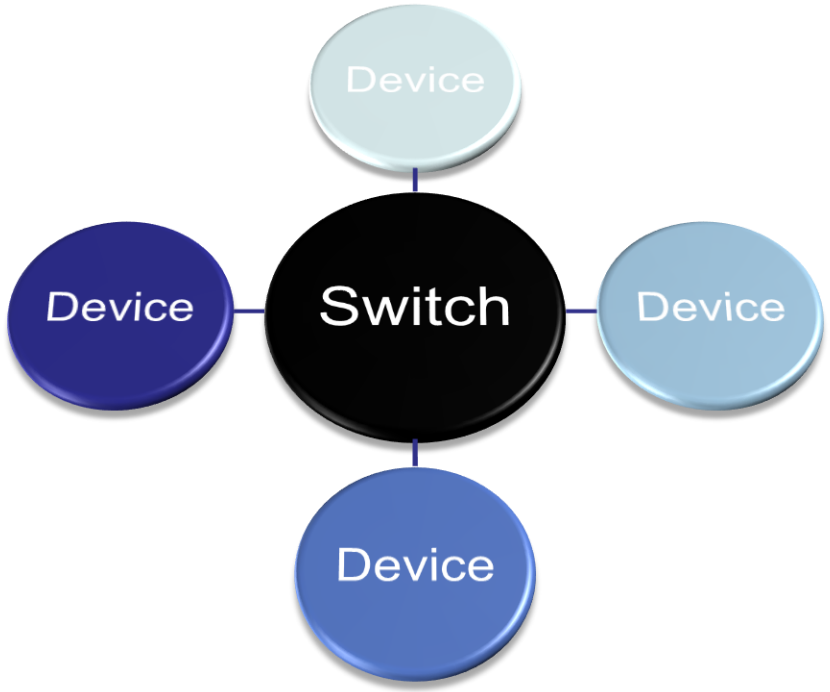


Data networks: smarter wire

- Up to 512 channels of audio on each cable
- Audio transported to and from many devices at once
- Copper runs up to 100m per cable
- Fiber runs much longer (kilometers)
- Simultaneously carry any mix of data types (audio, control data, Twitter)

Networks: smarter connections

- No “inputs” or “outputs” – all devices bi-directional
- Switched structure ensures no data loss even with high traffic
- Unlimited splits with no special hardware
- Cables and switches largely generic, easily swapped



Networks: performance

- Gigabit networks support huge channel counts
- Gigabit networks provide vanishingly low latency
- Expensive switches not required
- Easily scalable, no limit upon devices

Networks: reliability

- Switched Gigabit networks are at the heart of industries around the world
- Manufacturers driven to deliver constant improvements
- Abundant local sources of expertise

Conclusion

- All physically connected systems can easily be mapped to networks
- Fundamental operation systems the same
- Networked systems offer pristine audio performance and scalability
- Gigabit technology eliminates bandwidth and latency concerns
- Non-networked gear can be integrated with networks
- Networks easier to install, repair and upgrade